

REMARKS

Entry of the foregoing, reexamination and reconsideration of the subject application are respectfully requested in light of the amendments above and the comments which follow.

As correctly noted in the Office Action Summary, claims 1-16 were pending. By the present response, claims 1, 7 and 12 have been amended, and claims 4-6, 9-11 and 14-16 have been canceled, and claims 17-19 have been added. Thus, upon entry of the present response, claims 1-3, 7-8, 12-13, and 17-19 are pending and await further consideration on the merits.

Support for the foregoing amendments can be found, for example, in at least the following locations in the original disclosure: the original claims.

CLAIM REJECTIONS UNDER 35 U.S.C. §103

Claims 1-5 and 7-11 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,497,573 (hereafter "*Wagner et al.*") in view of U.S. Patent No. 6,250,922 (hereafter "*Bassett et al.*") on the grounds set forth in paragraph 4 of the Official Action. For at least the reasons noted below, this rejection should be withdrawn.

The present invention is directed to an improved abutment for a dental prosthesis, and related restoration systems and methods. As discussed, for example, in paragraph [0012] of the present application, most ceramic restorations have a certain translucency. Thus, the abutment to which the dental prosthesis is attached should be shaded so it compliments the desired overall shade of the restoration. However, conventional abutments are typically available in one standard

color chosen by the manufacturer, regardless of the material from which they are made. Thus, an "exact match" between the abutment and the prosthesis is not achieved (see paragraph [0013]).

An implant abutment formed according to the present invention as set forth in amended claim 1. Amended claim 1 recites:

1. *An implant abutment for attaching a ceramic dental prosthesis within a patient's mouth, comprising:
a core; and
a ceramic cuff surrounding the core, wherein the cuff is colored to match the color of the dental prosthesis.*

A dental implant restoration system formed according to the principles of the present invention is set forth in amended claim 7: Amended claim 7 recites:

7. *A dental implant restoration system comprising:
an implant fixed within a patient's jaw;
an abutment having a core and a ceramic cuff surrounding the core, fixed to the implant; and
a ceramic dental prosthesis fixed to the abutment, wherein the abutment cuff is colored to match the color of the dental prosthesis.*

Similarly, a method performed according to the principles of the present invention is set forth in amended claim 12:

12. *A method for fabricating a dental implant restoration comprising: fixing an implant within the jawbone of a patient; fixing an abutment having a core and a ceramic cuff surrounding the core, to the implant; and fixing a ceramic dental prosthesis to the abutment, wherein the abutment cuff is colored to match the color of the dental prosthesis.*

Wagner et al. discloses a dental abutment having a metallic core, a shield surrounding an outer surface of the core, and a polymeric cuff surrounding the core and shield. A polymeric prosthesis is attached to the abutment. *Wagner et al.* is discussed in paragraph [0010] - [0011] of the present specification. As mentioned therein, *Wagner et al.* teaches forming the shield from an opaque material, which

may include various pigments, in order to best shield or mask any grayish or metallic color imparted by the core of the abutment. The three part system taught by *Wagner et al.* is inherently more costly than a two part system, both in time and material. As acknowledged at paragraph 4 of the Official Action, *Wagner et al.* also fails to disclose coloring the cuff to match the color of the prosthesis. Moreover, *Wagner et al.* fails to teach utilizing a ceramic prosthesis in combination with a ceramic cuff.

Bassett et al. is directed to a two piece dental abutment with a cuff portion that is removable from an upper portion. The cuff is also separable from the prosthesis in order to facilitate replacement.

It is asserted in paragraph 4 of the Official Action that *Bassett et al.* teaches matching the color of the cuff to match the prosthesis. This assertion is respectfully traversed. Three portions of the *Bassett et al.* disclosure are cited in support of this assertion. First, column 2, lines 42-45 of *Bassett et al.* are cited as teaching coloring the abutment to match the prosthesis. Applicant respectfully disagrees. This portion of *Bassett et al.* reads as follows:

the cuff may be colored or have a coating, such as porcelain.
This coloring or coating could be separate from the upper
portion and would enhance the aesthetics of the abutment.

The above-quoted disclosure simply refers to the fact that the cuff may be provided with a color, and that color or coating would be separate from the upper portion of the abutment, thereby enhancing the aesthetics of the abutment. However, the above-quoted disclosure clearly does not disclose, or even suggest, matching the color of the cuff with the color of the dental prosthesis as required by the presently claimed invention.

Column 4, lines 55-57 of the *Bassett et al.* reads as follows:

Alternatively, the old cuff may be replaced with one that is coated, colored, or painted to camouflage the abutment in the mouth.

The above-quoted disclosure simply refers to the fact that a replacement cuff can be colored in order to "camouflage the abutment." However, this clearly does not disclose, or even suggest that the color of the cuff be matched with the color of the dental prosthesis.

Finally, column 6, lines 20-25 of *Bassett et al.* reads as follows:

In the present invention, after the prosthesis is removed, a new cuff is placed on the implant and the prosthesis is reattached. The prosthesis itself though did not have to be modified or replaced. Thus, a second prosthesis does not have to be fabricated.

The above-quoted portion of the *Bassett et al.* disclosure is simply unrelated to the concept of coloring the cuff to match the color of the dental prosthesis.

The grounds for rejection set forth in paragraph 4 of the Official Action also implies that *Bassett et al.* teaches modification of the implant described in *Wagner et al.* by forming the cuff from a ceramic material. This assertion is respectfully traversed. Namely, given the clear teachings of *Wagner et al.* with regard to the choice of a polymeric material for formation of the cuff and dental prosthesis, one of ordinary skill in the art would not have motivated to make the proposed modification to *Wagner et al.* by utilizing a ceramic material for either the cuff or the dental prosthesis. To the contrary, *Wagner et al.* clearly teaches away from the proposed modification.

Wagner et al. discusses conventional dental prosthesis and abutment cuffs made from ceramic materials, but points out certain disadvantages allegedly associated therewith. Namely, *Wagner et al.* teaches that ceramics are brittle and

not easily repaired when damaged, multiple tooth prosthesis made from ceramic are difficult to fabricate because of their hard and brittle nature, and ceramic components are difficult to fabricate with precision because of shrinkage that can occur during the sintering procedure (column 1, lines 42-56). With respect to abutment cuffs made from a ceramic material, *Wagner et al.* suggests that abutment components made from ceramics cannot be easily repaired and that ceramics are harder than natural teeth, resulting in a tendency to wear an opposing natural tooth during chewing (column 1, lines 57-67). *Wagner et al.* proposes a solution to these "problems" associated with the prior art by clearly teaching the alleged superiority of utilizing a polymeric material in the place of a ceramic material for both the cuff and the dental prosthesis:

The cuff 140 of the abutment and the prosthesis 102 are both made from polymeric materials . . . the polymeric cuff section of the abutment provides numerous advantages. First, a polymeric abutment or prosthesis can be prepared if damaged. Some polymers, for example, can be soften and reshaped even after they harden. Further, additional polymeric material can be added to the existing structure if a repair is necessary. As another advantage, the polymer in the cuff can bond with the polymer and the prosthesis to form an integrated prosthetic unit. This unit would include the combination of the prosthesis and the abutment. (column 3, line 65- column 4, line 7).

By contrast, as evident from claims 1, 7 and 12 reproduced above, the presently claimed invention requires at least the cuff be formed of a ceramic material (claim 1) and with respect to the restoration system and method of claims 7 and 12, that the dental prosthesis be formed of a ceramic material as well. To reiterate, the proposed combination of *Wagner et al.* and *Bassett et al.* fails to suggest providing the cuff with a color that matches the color of a dental prosthesis, and fails to suggest utilizing a ceramic material for the cuff and/or dental prosthesis.

A proper rejection under 35 U.S.C. §103 should take into account the content of the prior art references as a whole, and account for the portions contained therein which teach away from the claimed invention. United States v. Adams, 383 U.S. 39, 50 (1966). The rejection appearing in paragraph 4 of the Official Action is deficient in that it clearly fails to consider the strong teaching away from the use of ceramic materials contained in the disclosure of *Wagner et al.* In light of the teachings contained in *Wagner et al.*, one of ordinary skill in the art would not have been led to the presently claimed invention. To the contrary, one of ordinary skill in the art would have been led away from the use of ceramic dental prosthesis in combination with a ceramic cuff by the proposed combination of prior art references. Thus, the rejection is improper and should be withdrawn. In re Gurley, 31 USPQ2d 1130, 1131 (Fed. Cir. 1994).

Claims 6 and 11 stand rejected under 35 U.S.C. §103(a) as being unpatentable over *Wagner et al.* and *Bassett et al.* in view of U.S. Patent No. 6,039,568 (hereafter "*Hinds*") on the grounds set forth in paragraph 5 of the Official Action. For at least the reasons noted below, this rejection should be withdrawn.

Hinds discloses a tooth-shaped dental implant. *Hinds* is cited as allegedly teaching a ceramic prosthesis in conjunction with an implant and abutment system. It is alleged that it would have been obvious to one of ordinary skill in the art, in view of *Hinds*, to modify *Wagner et al.* and *Bassett et al.* to create a dental restorative system that comprises a prosthesis and abutment cuff made of a ceramic material. This assertion is respectfully traversed.

As explained above, one of ordinary skill in the art would not have motivated to modify the teachings of *Wagner et al.* to form either the cuff and/or prosthesis from

a ceramic material, even in light of the teachings of *Bassett et al.* and *Hinds*. To the contrary, *Wagner et al.* clearly suggests the superiority of the use of polymeric materials for the cuff and dental prosthesis. *Wagner et al.* clearly teaches away from the proposed modification. Thus, for at least the reasons previously noted, the rejection is improper and must be withdrawn. In re Gurley, 31 USPQ2d 1130, 1131 (Fed. Cir. 1994).

Claims 12-16 stand rejected under 35 U.S.C. §103(a) as being unpatentable over *Wagner et al.* in view of *Bassett et al.* in view of *Hinds* and further in view of U.S. Patent No. 6,368,108 to Locante et al. (hereafter "*Locante et al.*") on the grounds set forth in paragraph 6 of the Official Action. For at least the reasons noted below, this rejection should be withdrawn.

Locante et al. describes a method for immediately placing non-occlusive and non-functional temporary dental implant prosthesis in the jawbone of a human patient. It is alleged in paragraph 6 of the Official Action that the above-identified four-reference combination would have suggested the methods of claims 12-16. However, as explained above, the principle combination of *Wagner et al.*, *Bassett et al.*, and *Hinds* possess certain deficiencies which are not cured by the addition of the teachings of a yet another (fourth) reference, to wit *Locante et al.* In particular, amended claim 12 requires fixing an abutment having a core and ceramic cuff surrounding the core, as well as fixing a ceramic dental prosthesis to the abutment, wherein the abutment cuff is colored to match the color of the dental prosthesis. None of the cited prior art references disclose, or even suggest, matching the color of the abutment cuff to the color of the dental prosthesis as required by claim 12. Moreover, one of ordinary skill in the art would never have been motivated to modify

the teachings of *Wagner et al.* in a manner which would result in the use of a ceramic material for the cuff and/or dental prosthesis as alleged. To the contrary, *Wagner et al.* clearly teaches away from this aspect of the presently claimed invention. Thus, for at least these reasons, the rejection is improper and should be withdrawn.

CONCLUSION

From the foregoing, further and favorable action in the form of a Notice of Allowance is earnestly solicited. Should the Examiner feel that any issues remain, it is requested that the undersigned be contacted so that any such issues may be adequately addressed and prosecution of the instant application expedited.

Respectfully submitted,

BUCHANAN INGERSOLL PC

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By: _____

Scott W. Cummings

Registration No. 41,567

P.O. Box 1404
Alexandria, Virginia 22313-1404
(703) 836-6620